## PRELIMINARY REMARKS

This application is a continuation of U.S.S.N. 08/167,109, which was finally rejected March 30, 1994. New claims have been provided in this continuation application. These amendments add no new matter to the specification for the reasons given below. Before addressing the rejections in that Office Action, Applicant points out the following.

**I. The deposit made with USSN 07/371,799 (ATCC 68075) is part of the disclosure associated with that case and all later continuations.**

This continuation application is entitled to the August 9, 1989 filing date of USSN 07/371,779, the original in a string of parent continuation applications ("the '799 Application"). The '799 application and each of these continuation applications feature a clone deposited on or before the original priority date, at the American Type Culture Collection in Rockville, Maryland under accession number 68075. Each of the priority applications references and claims this deposit, ATCC 68075. The instant application also references and claims ATCC 68075.

**II. ATCC 75949 is part of the disclosure associated with USSN 07/371,779 and all later continuations.**

Page 9, lines 1-3, of the '799 application references additional clones, including one now deposited as ATCC 75949. Each of the continuation applications contains an identical reference to the additional clones, except the current application, which provides additional identification of one of the referenced clones as ATCC 75949. The history of ATCC deposit 75949 is documented by the enclosed Declarations of Stuart

Lipton, Dimitri Krainc, Rachael Neve, and Dana Leifer. That chain of custody is as follows:

- Dr. Neve describes cloning experiments she did at Dr. Lipton's (the inventor's) request, from which she obtained ATCC 75949 (then known as TR2B); She did that work before the '779 case was filed (August 9, 1989), and she reported obtaining that and other clones to Dr. Lipton before that filing date. She further documents her custody of TR2B until she transmitted it to Dr. Leifer in 1990.
- The inventor, Dr. Lipton, confirms that he requested Dr. Neve to perform the cloning experiments, and that she reported the acquisition of the TR2B clone before August 9, 1989. He also confirms that the reference in the '779 case to certain clones obtained upon rescreening includes the clone known as TR2B.
- Drs. Krainc and/or Leifer complete the chain of custody by documenting receipt of TR2B from Dr. Neve in 1990, and the making the deposit of that clone as ATCC 75499.

In sum, Applicant has satisfied the requirements of In re Lundak 227 USPQ 90 (Fed. Cir. 1985) and MPEP 608.01 (p), C., p. 600-41 with regard to a deposit that is referenced in the specification but was not deposited until after the Applicant's priority date.

> The Patent and Trademark Office will also accept the deposit of a suitable microorganism or other biological material made after the effective U.S. filing date of the application so long as the microorganism or other biological material is identified in the application as filed and a suitable deposit is made before the patent is granted, In re Lundak, USPQ 90 (Fed. Cir. 1985). ...As noted in In re Lundak, an appropriate amendment to a pending application to identify the depository affording permanence to the deposit and the accession number for the deposit would not constitute new matter.

ATCC 75949 is a part of the disclosure in this case effective as of the August 9, 1989 '779 filing date.

**III. ATCC 68075 and ATCC 75949 are useful for regenerating neurons, as taught by all parent cases.**

Accompanying these remarks are Declarations of Stuart Lipton and Dimitri Krainc establishing that the claimed clones are useful for regenerating neurons. Neuronal growth and/or regeneration was enhanced in cells transiently transfected with DNA encoding the protein of the invention. This was seen in the pattern of differentiated cells which had properties of neurons (e.g., neurofilaments), and in neuronal process outgrowth seen in such cells. Applicants believe that this demonstrated growth will benefit conditions such as neuron trauma, as taught in the specification.

Applicant originally believed such regeneration takes place through a mechanism involving the Thy-1 receptor. Applicant now believes the mechanism of operation involves transcription enhancement, not the Thy-1 receptor.

In short, the clone has the neuroregenerative function described in the parent and retained in this continuation application. By law, the mechanism of action is not an essential part of enablement, so long as the invention can be practiced and is useful as described in the specification. See e.g., Fromson v. Advance offset Plate, Inc., 720 F.2d 1565, 1570 (1983), which states that it is "axiomatic that an inventor need not comprehend the scientific principles on which the practical effectiveness of his invention rests."

The claims are fully enabled by the ATCC deposits discussed above, and Applicant is entitled to the benefit of the original August 9, 1989 filing date of the '779 application with respect to those deposits.

**IV. Rejections from previous cases**

The rejections from the most recent Office Action in previous case (paper 20), which cites rejections in a previous Office Action, are addressed below.

A. Restriction

Applicant specifically does not reaffirm any constructive election of inventions made in previous cases, and requests that the Examiner issue a restriction requirement if she concludes that multiple inventions are presented in this case.

B. 35 USC §101 -- statutory subject matter

All claims in the parent case were rejected on the ground that they are not drawn to one of the categories specified in

§101 as statutory subject matter; rather that they are drawn to naturally occurring matter.

The claims as now amended in this case should remove any objections as to their qualification as statutory subject matter. Non-statutory subject matter is defined in the MPEP (706.03(a)) as "a thing occurring in nature, which is substantially unaltered." The claims specify recombinant nucleic acid and purified polypeptides. Clearly, by definition, the claims do not encompass any naturally occurring substance.

In requiring a showing of separate utility, the Office Action suggests that naturally occurring substances are somehow prior art, so that the claims must be non-obvious in view of the naturally occurring substances, even though those substances, pure or impure, were completely unavailable to the art. In this case, the claimed substances were unavailable to the art because the art did not know they existed and the substances are not obvious from the prior art.[1] This is not a case of further purification of a natural substance already known to exist. This is in fact the classic case of discovery of a previously unknown and unobvious substance. To maintain the §101 rejection on these facts would require reversal of 80 years of statutory and court precedent, as well as clear U.S. Patent and Trademark Office policy. The requirement of statutory subject matter under §101

[1] If the examiner feels the substances were available to the art, then the Examiner must have in mind some publication, patent, or other art that must be cited under 35 U.S.C. §102/103.

has been met, and Applicant requests that this rejection be withdrawn.

To the extent that the Examiner discusses the need to show a utility for the claimed compound under §101 (as distinct from the statutory subject matter requirement), Applicant refers to the discussions above and below of data that establish that the claimed compositions can be used clinically to regenerate neurons.

C. 35 USC §112, first paragraph

The specification of U.S.S.N. 08/167,109 was objected to, and claims 1-3 and 5 rejected, under §112, first paragraph, because no data supporting regeneration are provided in the specification.

As noted above, the enclosed Declaration of Dr. Stuart A. Lipton establishes that the claimed ATCC clones discussed above regulate transcription of target neuronal genes. This fact supports an inference of the utility described in the specification as filed regarding neuronal regeneration.

On page 5 of paper 20, the Examiner discusses a bovine Thy-1 receptor, and Applicant would like to point out that this application pertains to a human protein, not one of bovine origin.

Applicant has fulfilled all the requirements under the Budapest Treaty for the deposits of clones 68075 and 75949, either in the specification as filed in this continuation, or

through amendment herein. A copy of the receipt of ATCC 75949 is enclosed.

In view of the above, it is submitted that all of the claims in the application are in condition for allowance, and such action is respectfully requested. Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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